CONFIDENTIAL

December 15, 1997

BY HAND

Gregory N. Connolly, D.M.D., M.P.H.
Director, Massachusetts Tobacco Control Program
Massachusetts Department of Public Health
250 Washington Street, Fourth Floor
Boston, Massachusetts 02108

Re: 1997 Annual Report of Philip Morris Incorporated - Nicotine Yield Rating Information

Dear Dr. Connolly:

In accordance with Massachusetts General Laws, Chapter 94, Section 307B and the regulations promulgated by the Department of Public Health ("DPH") pursuant thereto, Philip Morris Incorporated ("Philip Morris") hereby submits the attached 1997 annual report to the DPH. In addition to this hard copy submission, Philip Morris submits the attached disc containing its submission in electronic form.

In accordance with Sections 660.102 (A)(1) and (B)(1) of the Code of Massachusetts Regulations ("CMR"), the comprehensive annual report contains, in Attachment A, the "most recent nicotine level" reported to the Federal Trade Commission ("FTC"), as published in the FTC Report entitled *"Tar, Nicotine, and Carbon Monoxide of the Smoke of Varieties of Domestic Cigarettes"* for each cigarette brand style and generic cigarette manufactured by Philip Morris and distributed within the Commonwealth of Massachusetts.

The comprehensive annual report contains additional nicotine yield rating information for each cigarette brand style and generic cigarette manufactured by Philip

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Morris with a national market share in excess of five percent of the United States cigarette market and distributed within the Commonwealth of Massachusetts.

The Marlboro brand family of cigarettes is the only Philip Morris brand family that has a national market share greater than five percent as reported in the year-end 1996 and second-quarter 1997 Maxwell Reports published by Davenport & Company LLC as successor publisher of Maxwell Reports to Wheat First Butcher Singer and includes Marlboro brand styles currently distributed within the Commonwealth of Massachusetts. Therefore, pursuant to Sections 660.000 and 660.102 (A) and (B) of the CMR, Philip Morris provides the information included on Attachment B, in the form provided by the Commonwealth, with respect to all Marlboro brand styles manufactured by Philip Morris and currently distributed within the Commonwealth of Massachusetts.

The cigarettes tested for total nicotine content, percent filter tip ventilation, "pH" of cigarette smoke and "nicotine delivery under average smoking conditions" were collected through a market sampling conducted in accordance with the guidelines set forth in Standard 8243 of the International Organization for Standardization ("ISO") and the CMR. An equal number of samples was retained for internal testing by Philip Morris and previously delivered to your attention for the Commonwealth of Massachusetts.

With the exception of the FTC testing methods referenced above and the percent filter tip ventilation measurement, all of the procedures designated for the testing of total nicotine content, "pH" of cigarette smoke and "nicotine delivery under average smoking conditions" are non-validated procedures. Philip Morris believes that improved procedures should be developed and validated prior to submission of the 1998 Annual Report or as soon as possible thereafter. In accordance with the CMR recommendations, Philip Morris is willing to participate in a cigarette industry validation process for each of the recommended procedures discussed below.

Nicotine Measurement

In accordance with Section 660.102(B)(2) of the CMR, Philip Morris measured the quantity of nicotine contained in the cigarette filler based on a variant of the Center for Disease Control's "Protocol for Analysis of Nicotine, Total Moisture and pH in Smokeless Tobacco Products" published in the Federal Register on May 2, 1997, Vol. 62, No. 85, pp. 24115-9 (the "CDC Protocol"). Philip Morris has several concerns about using the CDC Protocol to measure the nicotine content in cigarette filler, as

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opposed to measuring nicotine content in the six categories of commercially available smokeless tobacco products for which the methodology was developed.

First, Philip Morris has concerns with the "Quality Control Pool" referenced at page 24117, Par. II. C. of the Federal Register. The CDC Protocol states that the "smokeless tobacco product should be enriched with nicotine at the high and low ends of expected values for the smokeless tobacco product." Philip Morris did not follow the specified CDC Protocol regarding the "Quality Control Pool" for two reasons: (1) Philip Morris is concerned that the addition of extraneous nicotine to the sample of tobacco may result in a nonhomogeneous sample, causing inaccurate test results; and (2) Philip Morris is concerned about the safety issues involved with enriching cigarette filler with extraneous nicotine. As an alternative, Philip Morris selected two "Quality Control Pools" of blended tobaccos with no extraneous nicotine, one of which had higher nicotine than expected in the blended cigarette, and the other of which had lower. The alternative was selected by Philip Morris in order to remain within the range of expected values for the cigarette tobacco. Philip Morris does not believe that the Quality Control Pool, with nicotine enrichment per the CDC Protocol, would have fallen within that expected range.

Second, Philip Morris has concerns about various calculations described in the CDC Protocol. For example, Equation 3 (referenced at page 24118, Par. II.D.8 of the Federal Register) -- which is used to calculate the amount of nicotine in the cigarette filler -- may be inaccurate because of a flawed recovery factor. The recovery factor may be flawed because the nicotine and internal standard concentrations (referenced at page 24117, Par. II.B.) do not have adequate corrections for dilution effects.

Third, Section 660.102(B)(2) of the CMR and the CDC Protocol are inconsistent with respect to whether manufacturers were to report the measurement of the quantity of nicotine content in cigarette filler on a per cigarette basis or a per gram of tobacco basis. In accordance with Section 660.102(B)(2) of the CMR, Philip Morris reported the total nicotine content of the cigarette.

Philip Morris submits, as Attachment C, a variant of the CDC Protocol that reflects the procedure followed by Philip Morris.

Philip Morris believes that an improved procedure should be developed and validated prior to submission of the 1998 Annual Report or as soon as possible thereafter. Such a procedure should be developed through a cigarette industry inter-laboratory validation study.

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Filter Tip Ventilation Measurement

Philip Morris measured Percent Filter Tip Ventilation in accordance with Section 600.102(B)(3) of the CMR utilizing a model PDI/DDI manufactured by KC Automation. The instrumentation utilized by Philip Morris in connection with the preparation of this submission is identical in functionality to the Filter Dilution (Ventilation) Testing Instrument (FDT) product no. FDT 232 required to be utilized by Section 600.102(B)(3) of the CMR and produces similar results.

"pH" Measurement

Philip Morris could not determine the "pH" of the cigarette smoke in accordance with the method described with specificity in Section 660.102(B)(4) of the CMR, and Appendix 2D thereto, because the necessary equipment described in the referenced article by Hayes et al. "A Method for Measuring the pH Value of Whole Smoke," (*Tobacco Science*, 1977:XXI:58-61) is not commercially available, nor is a functional equivalent.

Philip Morris is not aware of any standard or accepted method used by the cigarette industry or others to conduct smoke "pH" measurement. As detailed in Attachment D hereto, Philip Morris has developed and hereby submits a method, "Determination of pH of an Aqueous Solution of Mainstream Cigarette Smoke using a Routine Linear Analytical Smoking Machine." In addition, Philip Morris believes that the method described in Attachment D should be reproducible across laboratories. Philip Morris will submit the procedure for validation once the procedures for validation contemplated by the CMR are established.

Miscellaneous

The 43 milliliter puff volume referenced in Appendix 2D is inconsistent with the 45 milliliter puff volume required by Section 660.102(B)(5) of the CMR with respect to "nicotine delivery under average smoking conditions." The Philip Morris method utilized to measure the "pH" of the whole smoke of cigarettes used the 45 milliliter puff volume required by Section 660.102(B)(5).

Similarly, the 43 milliliter puff volume referenced in Appendix 2E is inconsistent with the 45 milliliter puff volume required by Section 660.102(B)(5) of the CMR with respect to "nicotine delivery under average smoking conditions." Philip

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Morris used the 45 milliliter puff volume required by Section 660.102(B)(5) to calculate the "nicotine delivery under average smoking conditions."

Designated Contact

The complete name, title, business address and telephone number of the individual designated by Philip Morris as the DPH contact person for inquiries related to 105 CMR 660.000 et seq. follows.

Dr. Jerry F. Whidby
Technology Fellow
Philip Morris Research & Development
4201 Commerce Road
Gate C/Door 17
Richmond, Virginia 23234
(804) 274-5276

Dr. Whidby is familiar with the nicotine yield rating information set forth herein.

Please acknowledge your receipt of the 1997 Annual Report of Philip Morris Incorporated by signing and returning one copy of this letter in the pre-addressed, postage paid mailer provided for your convenience.

Sincerely,

Philip Morris Incorporated

By: _____

Title: Technology Fellow

ACKNOWLEDGMENT OF RECEIPT

Commonwealth of Massachusetts

By: _____

Title: _____

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